

What is claimed is:

1. A device for treating blood in an extracorporeal circuit comprising a venous blood reservoir having an inlet and an outlet, a heat exchanger having an inlet and an outlet, a pump having an inlet and an outlet, an oxygenation apparatus having an inlet and an outlet, and an arterial blood filter having an inlet and an outlet, wherein the venous blood reservoir, heat exchanger, pump, oxygenation apparatus, and arterial blood filter are integrated into a single monolithic assembly.
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2. The device according to claim 1, further comprising a cardiotomy reservoir that is monolithically connected to the venous blood reservoir.
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3. The device according to claim 1, wherein the outlet of the venous reservoir is connected to the inlet of the heat exchanger, the outlet of the heat exchanger is connected to the inlet of the pump, the outlet of the pump is connected to the inlet of the oxygenation apparatus, and the outlet of the oxygenation apparatus is connected to the inlet of the arterial filter.
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4. The device according to claim 1, wherein the device comprises a first hollow cylindrical structure for containing a blood oxygenation structure, wherein the first hollow cylindrical structure is suitable to accommodate the heat exchanger, and wherein the first hollow cylindrical structure supports the venous blood reservoir and the pump, respectively, at the upper end face and at
25 the lower end face, and wherein the device comprises a second hollow cylindrical structure monolithically connected to the first hollow cylindrical structure and being suitable to contain a filtration structure for filtering the arterial blood.

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5. The device according to claim 1, wherein the device comprises a first hollow cylindrical structure which accommodates the heat exchanger and supports the venous blood reservoir and the pump so as to arrange in a coaxial and directly facing configuration the outlet of the venous blood reservoir and
5 the inlet of the heat exchanger, and the outlet of the heat exchanger with the inlet of the pump.

6. The device according to claim 1, wherein the outlet of the venous reservoir is connected to the inlet of the pump, the outlet of the pump is
10 connected to the inlet of the heat exchanger, the outlet of the heat exchanger is connected to the inlet of the oxygenation apparatus, and the outlet of the oxygenation apparatus is connected to the inlet of the arterial filter.

7. The device according to claim 1, wherein the inlet of the pump is
15 connected directly to the outlet of the venous blood reservoir, the outlet of the pump ends at the base of a first hollow cylindrical structure for containing a blood oxygenation structure, wherein the first hollow cylindrical structure is suitable to accommodate the heat exchanger and to support, at the peripheral region, a second hollow cylindrical structure that is suitable to contain a
20 filtration structure for filtering the arterial blood.

8. The device according to claim 7, wherein the outlet of the pump ends at the base of the first hollow cylindrical structure at the axis thereof and directly faces the inlet of the heat exchanger provided within the first hollow
25 cylindrical structure.

9. The device according to claim 1, wherein the pump is a pulsating pump.

30 10. The device according to claim 1, wherein the pump is a centrifugal pump.